

# Magnesium Diboride Superconducting Coils for Electric Propulsion Systems for Large Aircraft, Phase I

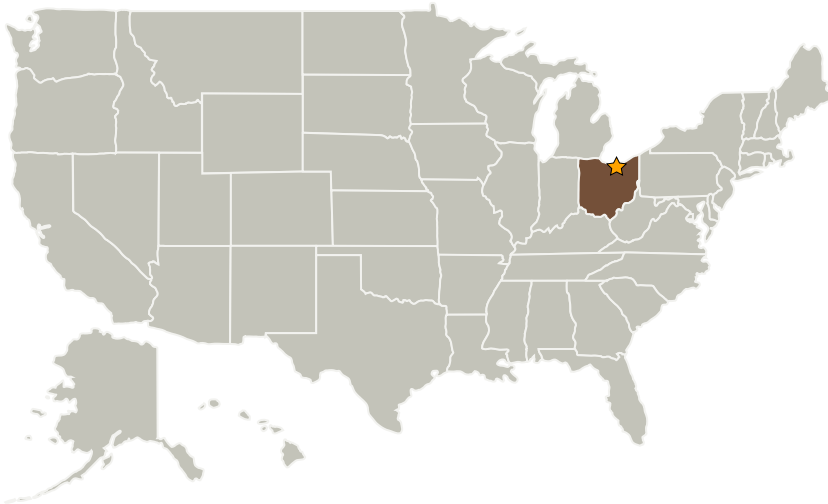
Completed Technology Project (2004 - 2004)



## Project Introduction

For electric propulsion systems for large aircraft it is desirable to have very light weight electric motors. Cryogenic motors offer much lighter weight than conventional iron room temperature motors. Superconducting cryogenic motors can offer much more lighter weight motors than just cryogenically cooled copper motors. Magnesium diboride, a light-weight superconductor wire, cooled in the available liquid hydrogen fuel, is the ideal candidate coil material for large aircraft motors. During the Phase I we will demonstrate using this new wire in coil forms that will show feasibility of fabricating exciter, rotor and stator coils in a Phase II motor demonstration.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Hyper Tech Research, Inc.	Supporting Organization	Industry	Columbus, Ohio

### Primary U.S. Work Locations

Ohio



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Glenn Research Center (GRC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Project Manager:**

Eugene H Trinh

**Principal Investigators:**

Michael Tomsic

Nacy A Baugher

## Technology Areas

**Primary:**

- TX14 Thermal Management Systems
  - └ TX14.1 Cryogenic Systems
    - └ TX14.1.3 Thermal Conditioning for Sensors, Instruments, and High Efficiency Electric Motors